Listing of Claims

1-20. (Cancelled)

21. (Currently amended) An apparatus for measuring a load applied to a quantity of material, said apparatus comprising:

an inner plate having an inner surface and an outer surface, said inner surface of said inner plate being positionable against a portion of the quantity of material;

an outer plate having an inner surface and an outer surface, said outer plate being spaced apart from said inner plate such that said inner surface of said outer plate is opposite said outer surface of said inner plate; and

a load cell assembly comprising at least three load cells, each load cell comprising an upper portion and a load pin, wherein the upper portion of the load cell is connected to the outer plate and the load pin of the load cell contacts the inner plate ~~positioned between said outer surface of said inner plate and said inner surface of said outer plate, wherein the load cell assembly includes at least three load cells~~, and wherein the load cells are substantially evenly spaced apart, such that said load cell assembly measures the load applied to the quantity of material when a force is exerted against the outer surface of said outer plate.

22. (Previously presented) A gyratory compactor apparatus comprising:

a frame;

a mold supported by said frame, said mold having a cavity for receiving a quantity of material;

an inner plate being positionable against a portion of the material;

an outer plate which is spaced apart from said inner plate;

a load cell assembly positioned between said inner plate and said outer plate for measuring a load, wherein the load cell assembly includes at least three load cells, wherein the load cells are substantially evenly spaced apart;

a ram which is engageable with said outer plate and which is for compacting the material within said mold; and

a mold gyrator for gyrating said mold as said ram compacts the material, such that said load cell assembly measures the load applied to the material when said ram exerts a force against said outer plate.

23. (Previously presented) An apparatus according to claim 22, wherein said mold is a cylindrical mold, and wherein said inner plate is circular and has a first diameter and said outer plate is circular and has a second diameter which is slightly smaller than said first diameter.

24. (Previously presented) An apparatus according to claim 22, wherein said outer plate is substantially prevented from sliding with respect to said ram when said mold gyrator gyrates said mold as said ram compacts the material.

25. (Previously presented) An apparatus according to claim 24, wherein said ram includes a planar surface which abuts said outer surface of said outer plate when said ram compacts the material, wherein said outer surface of said outer plate includes a recess, and wherein said apparatus further includes:

a projecting member which extends from said planar surface of said ram into said recess of said outer plate such that said projecting member is engageable with sides of said recess.

26. (Previously presented) An apparatus according to claim 22, further comprising:

a data acquisition system which is electrically coupled to said load cell assembly to record the load measurements taken by said load cell assembly; and

a microprocessor which is electrically coupled to said data acquisition system to process and manipulate the recorded load measurements and volumetric properties.

27. (Previously presented) An apparatus according to claim 26, wherein said second plate includes a hole therethrough to receive electrical wires connecting said data acquisition system to said load cell assembly.

28. (Previously presented) A gyratory compactor comprising:

a frame;

a cylindrical mold supported by said frame, said mold having a cavity for receiving a paving material specimen;

a circular inner plate having a first diameter, said inner plate being positionable against the specimen;

a circular outer plate having a second diameter which is slightly smaller than said first diameter, said outer plate being spaced apart from said inner plate;

a load cell assembly positioned between said inner plate and said outer plate for measuring a load, said load cell assembly having at least three load cells which are substantially evenly spaced apart;

a ram which is engageable with said outer plate and which is for compacting the specimen within said mold;

a mold gyrator for gyrating said mold as said ram compacts the specimen, such that said load cell assembly measures the load applied to the specimen when said ram exerts a force against said outer plate, and such that said outer plate is substantially prevented from sliding with respect to said ram when said mold gyrator gyrates said mold as said ram compacts the specimen;

a data acquisition system which is electrically coupled to said load cell assembly to record the load measurements taken by said load cell assembly; and

a microprocessor which is electrically coupled to said data acquisition system to interpret the recorded load measurements.

29. (Previously presented) The apparatus of claim 22, wherein the microprocessor is electrically coupled to said gyratory compactor to process and manipulate the recorded load measurements and volumetric properties.

30. (Currently amended) An apparatus for calculating a location of a resultant force, said apparatus comprising:

an inner plate having an inner surface and an outer surface, said inner surface of said inner plate being positionable against a portion of the quantity of material;

an outer plate having an inner surface and an outer surface, said outer plate being spaced apart from said inner plate such that said inner surface of said outer plate is opposite said outer surface of said inner plate; and

a load cell assembly comprising at least three load cells, each load cell comprising an upper portion and a load pin, wherein the upper portion of the load cell is connected to the outer plate and the load pin of the load cell contacts the inner plate ~~positioned between said outer surface of said inner plate and said inner surface of said outer plate, wherein the load cell assembly includes at least three load cells~~, and wherein the load cells are substantially evenly spaced apart, such that said load cell assembly measures a combined resultant force to the quantity of material when a force is exerted against the outer surface of said outer plate.